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IMPACT OF LABOR COST CHANGES ON THE COMPETITIVENESS OF CHINA'S TEXTILE INDUSTRY

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Abstract

The study based on China's textile industry data from 1999 to 2012, we analyzed the labor costs competitive edge of China's textile industry, as well as its comprehensive competitiveness through longitudinal comparison and factor analysis. The data show that as labor costs rises, labor productivity grows in a more rapid speed, resulting in the decrease of unit labor costs, which shows that China's textile industry still keeps its competitive edge. We built a competitiveness evaluation system involving scale, profitability, development capacity and labor efficiency, technology level and the level of capital investment, the result of factor analysis shows that the comprehensive competitiveness of textile industry in China is rising, however the development prospects are yet uncertain.

Keywords: Labor cost, competitiveness, labor productivity, China' textile industry, factor analysis

INTRODUCTION

Textile industry is one of the traditional pillar industry of China, rich and cheap labor resources has long supported the country a leading cost-competitive in the international textile market during the past time. In recent years, high inflation leads enterprise to improve staff salaries continuously, which also makes the labor-intensive textile to bear labor costs upward pressure firstly. Rising labor costs is a double-edged sword, Wakeford (2004) found that, in the short term it negatively effects on productivity wages, but has a positive effect in the long time. Chinese scholars believe that the minimum wage increase will lead to the loss of international competitiveness of Chinese enterprises and domestic investment gravity weakened, especially since the 2009 Chinese fast rising US dollar denominated products (output) in labor costs led to

China's trade surplus decreased, meaning labor cost advantage of China's use of export promotion towards the end of the era of rapid growth (Zhou Yu, 2014). On the other hand, improve the labor cost helps to exert function of salary incentive, improve their enthusiasm, to reduce the staff turnover rate, increase of capital organic composition, to speed up the industrial transformation and upgrading, development of new labor-intensive industries out of the low wages and the low end of the industrial structure of the vicious cycle of innovation capability along with rising labor costs and enhance (Lin Wei, 2013; Zeng Guohua et al, 2011) .Peach and Stanley (2009) used the Meta - Regression method to analysis the results of 14 empirical evidence, the conclusion is that wage increases is conducive to the improvement of labor productivity. The famous "Carl paradox" is free from the above two points, Kaldor (1978) argued that unit labor costs and no definite relationship between economic growth, export growth and GDP growth was often accompanied by faster growth in unit labor costs. From the existing literature, the low labor costs of China's manufacturing industry was once a competitive advantage, but whether this advantage still exists under the labor costs continue to rise condition, especially how the competitiveness of the labor-intensive textile industry trends yet formed the same conclusion. Less literature measures the competitiveness of industries concerned mainly trade, strategic and other indicators to measure labor productivity measure .Rarely literature has discussed rising labor costs impact on aspects of China's manufacturing labor productivity, competitiveness, mainly with other countries horizontal contrast, from the perspective of time series study changes in China's textile industry labor costs affect labor productivity. In view of this, this article will gather in China's textile industry 1999-2012 statistics, studies the impact of labor costs changes in the textile industry, the competitiveness of the industry.

LITERATURE REVIEW

The existing study of existing literature on the evaluation of the competitiveness of the textile industry can be classified into three categories: First, using descriptive statistics compare with the competition of national exports of raw materials or production cost and other aspects of the advantages and disadvantages (Ramon H. Myers, 1965). Second, using summarized competitive advantage of China's textile industry from a theoretical point of production factors according to Porter diamond model (Zhang Jie and XIN Fu, 2010). Third is to build an competitiveness evaluation system, including market share and other indicators to evaluate the size of China's textile industry and competitive trends in different markets from many angles (WU Yili and GU Bin,2014).

This paper references Jin Bei (2003) to build an enterprise competitiveness index system, and based on the principles of the rationality of the data, desirability and typicality, composed of 14 observation variable is constructed our country textile industry competitiveness index evaluation system (as shown in table 1). Among them, the per capita labor costs by Wang Yanwu (2011) estimated method of manufacturing labor costs per capita, which require two transformations: first of all, with the average wage of workers multiplied by the unit of textile industry in cities and towns a conversion coefficient of 0.981, for all the staff average wages in manufacturing; Laborers remuneration includes employers pay salary to employees and include bonus and allowance, etc., here then multiplied by a factor of 1.27, obtain worker average pay. Technology including technology input and output, the former internal spending by textile industry science and technology activities (R&D) of sales revenue, the latter alternative with refers to an application for a patent for textile enterprises annual number.

Table 1. China's textile industry competitiveness index evaluation system

Element	Variable	Computing method	Symbol
Scale Power	sales revenue	Industry annual product sales	X_1
	total assets	Industry annual total assets	X_2
	net assets	Industry annual net assets	X_3
Profitability	total profit	Industry annual total profit	X_4
	Net profit margin	Industry annual total profit÷Industry annual net assets	X_5
	Return on total assets	Industry annual total profit÷ Industry annual total assets	X_6
Development ability	The past 3 years sales income average annual growth rate	$\sqrt[3]{\frac{\text{Industry annual product sales}}{\text{Industry annual product sales 3 years ago}}}-1$	X_7
	The past 3 years Profit total average annual growth rate	$\sqrt[3]{\frac{\text{Industry annual total profit}}{\text{Profit total three years ago}}}-1$	X_8
Labor efficiency	labor productivity	industrial added value÷number of annual industry	X_9
	Per capita labor costs	Town unit textile worker average wage *0.981*1.27	X_{10}
	unit labor cost	Per capita labor costs÷labor productivity	X_{11}
Technological level	Patent number	Industry annual patent number	X_{12}
	Ratio of R&D to scales	Expenditure on scientific and technological activities÷Industry annual product sales	X_{13}
Capital input	fixed investments	Industry average annual fixed asset investment	X_{14}

ANALYSIS & FINDINGS

In this paper, the data is from the "China Statistical Yearbook", "China Statistical Yearbook fixed assets" such as yearbooks, GTA database, wind database. Study for the textile industry textiles. In order to eliminate the effects of inflation, the absolute values are all in CPI as the deflator, converted into 1978 constant prices.

Labor costs changes in China's textile industry

In order to fully explain the changes in China's textile industry labor costs, we also observed the 1999-2012 China's per capita labor costs, trends in labor productivity and unit labor costs of the three indicators, as shown in Table 2.

Table 2 China's textile industry labor costs changes (unit :yuan/year)

Year	Per capita in labor costs		Labor productivity		Unit labor costs
	nominal value	actual value	nominal value	actual value	
1999	7167.49	1658.37	21867.1	5059.49	0.328
2000	7959.86	1834.07	26359.38	6073.59	0.302
2001	8323.66	1904.73	29057.57	6649.33	0.286
2002	9054.98	2088.81	32747.9	7554.3	0.277
2003	10065.38	2294.37	38198.03	8707.1	0.264
2004	11260.17	2470.42	43274.79	9494.25	0.26
2005	13120.26	2827.64	54829.56	11816.72	0.239
2006	14994.05	3183.45	64394.23	13671.81	0.233
2007	17402.31	3525.59	78464.63	15896.4	0.222
2008	20287.75	3881.34	135039.88	25835.06	0.15
2009	22725.91	4378.79	156077.54	30072.74	0.146
2010	27078.98	5051.11	167670.22	31275.92	0.162
2011	33604.85	5947.76	204048.03	36114.7	0.165
2012	39104.12	6745.58	268738.06	46358.13	0.146

Table 2 shows that, excluding the CPI deflator, the average annual labor costs from the actual value of 1658.37 yuan in 1999, up to 6745.58 yuan in 2012, or about four times the increase in 2008 after particularly evident. The actual value of the per capita labor productivity and labor costs were consistent with the direction of change that with the increase in labor costs, also will increase the level of labor productivity. Illustrating that rising labor costs can impact production efficiency through different paths incentives (Yao Xianguo et al., 2012), and the growth rate of labor productivity is significantly faster than the growth rate of per capita labor costs, "efficiency wage theory" here gets a relatively positive demonstration. Finally, from unit labor costs, the 1999-2012 years of generally declining trend, indicating higher labor costs achieving higher

labor productivity at the same time. The rapid increase of labor productivity to hedge the negative impact of wage increases, resulting in higher output per unit of labor. Time series data from the statistical point of view, China's textile industry still has low-cost competitive advantage in recent years.

China's textile industry competitive analysis

At present, the competitiveness of enterprises quantitative research methods including AHP, fuzzy comprehensive evaluation method, factor analysis method. Since the number of overall weight of each factor in the model is based on the factor analysis of variance to determine the contribution rate, the greater the variance of the more important variables, which avoids artificial weights to determine the elements of analytical methods (such as AHP, fuzzy comprehensive evaluation method) the subjective indicators of competitiveness evaluation involves mostly related, and the number of variables more, using factor analysis can easily identify the key factors affecting competitiveness. So the following Empirical Analysis uses factor analysis to evaluate the comprehensive competitiveness of the textile industry in the years 1999-2012.

Using SPSS 19, standardized indicators and dimension treatment, to ensure comparability, consistency and validity of data. First calculate the correlation coefficients between indicators, the results indicate the presence of a significant correlation between the index for factor analysis. Secondly, using principal component analysis of the first two common factors extracted cumulative variance contribution rate reached 92.10%, where the first factor F1 has played a major role in its variance contribution rate of 76.96%. Load factor rotated factor explains common factors F_1, F_2, meaning, F1 in sales revenue, total assets, net assets, gross profit, net profit margin assets, total assets of profitability, the per capita labor costs, labor productivity, the number of patents, load value on investment in fixed assets are large, and the coefficients are positive. X_1, X_2, X_3 reflects the scale of strength, X_4, X_5, X_6 reflect the profitability, X_9, X_{10}, X_{11} reflects the labor level, X_{12} is the output level of technological progress, X_{14} reflects the level of capital investment, seen F_1 is a comprehensive very strong factor, it can be named as an integrated factor. F_2 due X_7 (nearly 3-year average annual sales revenue growth), X_8 (last 3 years the average annual growth rate of total profits) have large positive load factor, and long-term viability is closely related to the development of the capacity factor named. Specific expression is as follows:

$$F_1=0.086X_1+0.079X_2+0.080X_3+0.102X_4+0.087X_5+0.89X_6-0.074X_7-0.025X_8+0.099X_9+0.103X_{10}-0.070X_{11}+0.099X_{12}-0.1167X_{13}+0.089X_{14}$$

$$F_2=0.024X_1+0.054X_2+0.053X_3-0.055X_4+0.014X_5+0.007X_6+0.501X_7+0.391X_8-0.045X_9-0.075X_{10}-0.079X_{11}-0.066X_{12}+0.348X_{13}-0.002X_{14}$$

The first equation formula X9 (per capita labor costs), X10 (labor productivity) coefficients are positive, indicating that the level of labor input and competitiveness is positively correlated, and the size of the unit labor cost competitiveness coefficient is negative with theoretical unit labor costs reflect the efficiency of inputs and outputs consistent, unit labor costs, the stronger the smaller the representative competitiveness. This article assumes accordingly hypothesis:

With the rise in labor costs, the level of competitiveness of China's textile industry is also improving.

To test the hypothesis, we variance contribution of each factor of two factors accounted for the proportion of the total variance contribution rate as a weighted by aggregated results of each year's textile industry overall competitiveness score F:

$F = W_1F_1 + W_2F_2$, where W_i (i = 1,2) is the variance contribution of each factor, F_j (i = 1,2) for the factor scores.

Textile each main factor score for each year, the competitiveness of the composite score shown in Figure 1, each of the main factors in the score the greater the ability to represent a particular aspect of the stronger, whereas the weaker; the higher the total score, indicating that the industry overall stronger competitiveness.

Figure 1. 1999-2012 China’s textile industry competitiveness factors scores

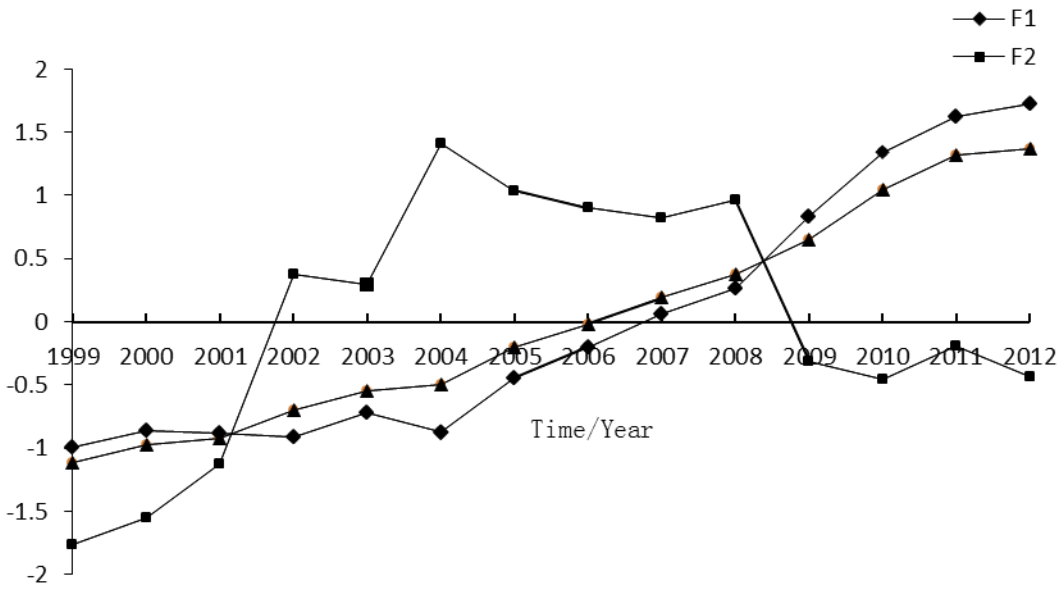

Figure 1 shows the composite score 1999-2012 competitiveness in China's textile industry was gradually increased, indicating its overall competitiveness has not been the impact of rising labor costs, but is constantly improving, just as test hypotheses proposed, but in 2005

represented the development of the textile industry development capacity factor F_2 has been in a downward trend, indicating that China's textile industry future prospects uncertain.

CONCLUSION AND POLICY RECOMMENDATIONS

After empirical analysis, we conclude the following conclusions:

First, China's textile industry is growing faster than labor productivity growth rate of labor costs. With greatly improved the level of per capita labor costs, labor productivity has been improved rapidly, consistent with both the direction of change, but the growth rate is not synchronized, the ratio of both unit labor costs- a generally downward trend. Look from the statistical time series analysis, in recent years, China's textile industry remains competitive cost. Second, the overall competitiveness of China's textile industry continues to rise, the impact of rising labor costs have not been, but the future prospects uncertain.

At present, China has gone from "low cost of production era" into the "high cost of production of the times", under conditions of low labor cost, small-scale manufacturing enterprises greater profit margins. The status quo of China's textile industry is small and micro enterprises, many small mills, such enterprises technology is weak, weak anti-risk ability, influenced by rising labor costs. Thus textile enterprises should actively explore scale upgrade path to the "efficiency wage theory" as the basis, but also to improve the workers compensation achieve higher productivity; in terms of personnel, should increase investment in human capital by improving workers qualities and skills.

China's abundant labor resources can become a competitive advantage, but this advantage does not mean lower prices, but to make it a quality with high, can bring high value-added and high-profit human capital (Feng Bing, 2006). From the perspective of long-term development perspective, the textile industry should focus on technological innovation and investments in technology, in particular to strengthen the high-tech, functional, differential fiber, textile processing technology and key equipment industry research and development, facing a huge domestic and foreign market demand, should strive to create an influential textile brand, the adjustment of product structure as soon as possible, increase the technological content of textile products, improve product quality and added value, in order to achieve transformation and upgrading of China's textile industry.

LIMITATIONS OF THE STHDY

To obtain accurate and comprehensive data is the main difficulty of this study, Because different statistical methods can lead to different Chinese textile industry's annual data. In order to maintain the consistency of the data, we had to give up some volatile variables, and selected

the relatively stable variable, so the construction of a model has some limitations. In the future study, we are looking forward to gain the more comprehensive and accurate data collection, in order to make the empirical results more theoretical and practical significance.

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